HAPPENINGS at the SAB

...ensuring a solid technical basis for environmental protection

Volume E6 Number 5 May 2001

THE EXECUTIVE COMMITTEE RETREATS...AND ADVANCES

EDITORIAL

The SAB Executive Committee (EC) conducted a 2½ day strategic planning retreat in early April. Under the leadership of the SAB Chair, Dr. William Glaze of the University of North Carolina at Chapel Hill, the EC contended successfully with a full agenda of issues that ranged from outsiders' perception of the Board, to the selection of Panel members, to possible structural changes in the future organization and operation of the Board.

In this issue..

Among the points made by a panel of "outsiders" (Dr. Peter DeFur, Dr. Carl Mazza, Dr. Larry Reiter, and Mr. Jim Solyst) and "insiders" (Dr. Morton Lippman, Dr. Roger Kasperson, and Dr. Donald Barnes) were the following:

a. The SAB must continue to be a source of independent and critical advice, where "critical" can mean "good news" when its warranted and "bad news" when that's what is needed.

b. The SAB needs to tread carefully along the line that separates science and policy. Overly cautious reports can result in bland, sterile advice with limited overall impact. Overly expressive reports can result in inappropriate, subjective statements on policy that undermine the credibility of the overall advice.

c. The SAB process is heavily dependent on the perception that people have that the process is free of conflicts-of-interest and is operated in such a way as to balance the biases that experts inevitably bring to an issue.

The Board is exploring procedures that will open the Panel selection process to greater

input from interested and affected parties. The goal is to demystify the process -- thereby removing people's worst fears -- and to benefit from the insights of knowledgeable people who are in a position to improve the process.

The EC is eager to have the SAB select and carry out its projects so that the Board can be more strategic in the advice it provides to the Agency. In considering the kinds of issues that will -- or should -- be coming to the Board in the future, it was not clear that the current structure is the optimal one for doing the job. The current structure has evolved over time and is a mix of committees that are program office-specific (e.g., the Drinking Water Committee (DWC) and Radiation Advisory Committee (RAC)) and those that are discipline-specific (e.g., Environmental Engineering Committee (EEC) and Ecological Processes and Effects Committee (EPEC)). Some of the most important issues for the future appear to be those that cut across program offices and disciplines with equal disregard; e.g., the use of computer models in environmental decision-making and the environmental impacts of biotechnology. Therefore, the Board is exploring organizational options that are clearly "outside the box". A status report on these thoughts will be presented at the July EC meeting.

Perhaps the most important conclusion of the group related to the overarching importance of aligning itself with the needs and directions of the new EPA Administrator, Governor Christine Todd Whitman. With that fact clearly in mind, Dr. Glaze will be continuing his meetings with top Agency officials.

Donald G. Barnes, PhD
SAB Staff Director

TENTATIVE SAB MEETING CALENDAR FOR MAY & JUNE

Several of the Federal Advisory Committee Act (FACA) meetings noted below have been announced in the Federal Register (FR), together with additional background information. Readers can automatically receive e-mailed copies of FR Notices by subscribing to the SAB Listserver; see Section Updates below.

If a series of meetings is anticipated, the number of the meeting in the series is indicated in parentheses; e.g., "(#2)".

MAY

1-2

Committee:	Research Strategies Advisory Committee (RSAC)
Topics:	Budget Review
Location:	Ariel Rios Building, Room 6013
Chair:	*Dr. Raymond Loehr, University of Texas*
DFO:	*Dr. John "Jack" R. Fowle III*
Email:	*fowle.jack@epa.gov*

2?

Committee:	Environmental Engineering Committee (EEC)
Topics:	Briefings and Updates on Subcommittee Activities
Location:	Ariel Rios Building, Room 6450C, Teleconference
Chair:	*Dr. Hilary Inyang, University of North Carolina*
DFO:	*Ms. Kathleen White*
Email:	*conway.kathleen@epa.gov*

14?

Committee:	Clean Air Scientific Advisory Committee (CASAC)
Topics:	Fine Particle Report from the CASAC Technical Subcommittee on Fine Particle Monitoring and Committee Planning
Location:	Ariel Rios Building, Room 6428, Teleconference
Chair:	*Dr. Philip Hopke, Clarkson University*
DFO:	*Mr. A. Robert Flaak*
Email:	*flaak.robert@epa.gov*

14?

Committee: Executive Committee's (EC) Subcommittee National-Scale Air Toxics Assessment (NATA) Review Panel
Topics: Writing Session (Non-FACA)
Location: Ariel Rios Building, Room 6013, Teleconference
Chair: *Dr. Mitchell Small, Carnegie Mellon University*
DFO: *Dr. K. Jack Kooyoomjian*
Email: *kooyoomjian.jack@epa.gov*

15

Committee: Executive Committee (EC)
Topics: Review Meeting
Location: Ariel Rios North, Room 3000
Chair: *Dr. William Glaze, University of North Carolina*
DFO: *Dr. Donald G. Barnes*
Email: *barnes.don@epa.gov*

22

Committee: Environmental Engineering Committee's (EEC) Subcommittee Industrial Ecology and Environmental Systems Management
Topics: Industrial Ecology
Location: Ariel Rios North, Room 6450C
Chair: *Dr. Hilary Inyang, University of North Carolina*
DFO: *Ms. Kathleen Conway*
Email: *conway.kathleen@epa.gov*

23?

Committee: Executive Committee (EC)
Topics: Review Meeting, Teleconference
Location: Ariel Rios North, Room 6013
Chair: *Dr. William Glaze, University of North Carolina*
DFO: *Dr. Donald G. Barnes*
Email: *barnes.don@epa.gov*

23-24

Committee: Executive Committee (EC)
Topics: Understanding Public Values and Attitudes Related to Ecological Risk Management (Non-FACA Workshop)
Location: Academy for Educational Development, Washington, DC
Chair: *Dr. Baruch Fischhoff, Carnegie Mellon University*
Contact: *Dr. Angela Nugent*
Email: *nugent.angela@epa.gov*

25

Committee: Environmental Economics Advisory Committee (EEAC)
Topics: The Benefits of Premature Morality Risk Reduction, Trade and Environment and BEN Model
Location: Olde Town Hilton, Alexandria, VA
Chair: *Dr. Robert Stavins, Harvard University*
DFO: *Mr. Thomas Miller*
Email: *miller.tom@epa.gov*

25

Committee: Executive Committee's (EC) Subcommittee National-Scale Air Toxics Assessment (NATA) Review Panel
Topics: Writing Session
Location: Ariel Rios Building, Room 6013, Teleconference
Chair: *Dr. Mitchell Small, Carnegie Mellon University*
DFO: *Dr. K. Jack Kooyoomjian*
Email: *kooyoomjian.jack@epa.gov*

JUNE

11-12

Committee: Executive Committee's Subcommittee STAA
Topics: Scientific and Technological Achievement Awards (STAA)
Location: Closed Meeting
Chair: *Dr. Herb Ward, Rice University*
DFO: *Mr. A. Robert Flaak*
Email: *flaak.robert@epa.gov*

12-13

Committee: Drinking Water Committee (DWC)
Topics: Candidate Contaminant List (CCL) Research Plan and Microbial Risk Assessment Paradigm
Location: Governor's House Hotel, Washington, DC
Chair: *Dr. Rhodes Trussell, Montgomery Watson Consulting Engineers*
DFO: *Mr. Thomas Miller*
Email: *miller.tom@epa.gov*

26-27

Committee:	Research Strategies Advisory Committee (RSAC)
Topics:	Science Plan and Stay the Course
Location:	TBD
Chair:	*Dr. Raymond Loehr, University of Texas*
DFO:	*Dr. John "Jack" R. Fowle*
Email:	*fowle.jack@epa.gov*

26-28

Committee:	Ecological Processes and Effects Committee (EPEC)
Topics:	National Assessment of Landscape Status and Change
Location:	TBD
Chair:	*Dr. Terry Young, Environmental Defense*
DFO:	*Ms. Stephanie Sanzone*
Email:	*sanzone.stephanie@epa.gov*

To View a Tentative 6 Month Calendar Click Here
Or
Go to the SAB website www.epa.gov/sab/mtgcal.htm

COMMITTEE ACTIVITIES IN APRIL

The *Ecological Processes and Effects Committee* (EPEC) formed a panel to review the Water and Watersheds (WW) Program of the EPA Science to Achieve Results (STAR) extramural grants program. The EPEC panel held 2 public meetings as part of that review. First, on April 3, a public teleconference meeting was held to receive a briefing about the STAR WW program, to discuss the questions in the charge to the SAB, and to request additional information about certain aspects of the program. Then, panelists attended an Agency-sponsored meeting of the STAR WW-funded researchers in San Francisco on April 18-19 in order to hear first hand about the research projects and preliminary results. A second public meeting of the EPEC panel was then held on April 20 in San Francisco, at which additional information was provided by the Agency, and the panel discussed preliminary findings and recommendations to be included in the SAB report. A public draft of the SAB report is expected by late June or early July, and review of the report by the SAB Executive Committee is planned for July.

On April 18 the Environmental Engineering Committee's (EEC) Subcommittee Industrial Ecology and Environmental Systems Management met by conference call. The Subcommittee reviewed the second draft of its commentary on Industrial Ecology. The draft is posted on the web at (http://www.epa.gov/sab).

The co-chairs expect to have a third draft available in mid-May and have scheduled another public conference call for May 22 to discuss the draft.

On April 24, the National-Scale Air Toxics Assessment (NATA) Subcommittee of the Executive Committee (EC) held a public technical editing conference call. The NATA Review Panel is in the process of drafting its report, and utilized this time to conduct this technical editing session, where the public listened in on the conversation to this non-FACA meeting.

SAB LECTURE SERIES

On Tuesday, March 13, 2001, the SAB hosted the fourth lecture in the second year of its series, "Science and the Human Side of Environmental Protection." Dr. Ortwin Renn, Director of the Center of Technology Assessment, a public foundation in Baden Wurttenberg devoted to the study of the societal impacts of technological and social change and Chair of Environmental Sociology at the University of Stuttgart, spoke on the topic of his research "Analytic-deliberative Processes in Risk Management; Opportunities, Problems, and Practical Experiences from a Risk-Management Perspective." Twenty-six people from 7 Headquarters Offices and 3 regions, and guests from Germany participated.

Dr. Renn began his presentations with some definitions: of "deliberation" and the challenges deliberation faces in risk management. He linked interest in deliberation in Germany to *Understanding Risk,* the 1996 report of the National Academy of Sciences, which he characterized as having international impact. "Deliberation" refers to a style of reaching a common agreement or conclusion where there is a mutual exchange of arguments and reflections among equals; all participants have equal rights and duties; there is consensus on rules for verifying or falsifying claims; and a transparent procedure of balancing pros and cons. In risk management, he suggested that deliberation encounters three challenges: (1) complexity in causal relationships, where there are multiple causes, and multiple effects, and where it is hard to relate a particular endpoint to a cause; (2) uncertainty, due to a variety of causes (variation among individual targets, errors in measurement and inference, stochastic relationships, and arbitrariness about system boundaries and ignorance about system effects); and (3) ambiguity in interpreting results, because "meanings" imposed on data sets can differ depending on values and perspectives.

He suggested that discourse about risk would be most successful if appropriate types of discourse were matched to the three different types of challenges. (Success was

defined in both subjective and objective terms: where participants felt the process was effective, where participants learned something they didn't know, and where the outcomes led to improved results.) Where the challenge is complexity, cognitive-analytic discourse among "professional knowledge carriers" was most appropriate. People in general "want to know what the experts say" and can accept good assessments of complex problems (such as the effects of electro-magnetic fields or whether dioxin is causing cancer). He argued that "common sense" and oversimplification were bad tools for resolving complexity.

In contrast, when the issue is uncertainty, "evaluative-reflective" discourse between those who pay for the risk costs and those who pay for the risk abatement costs was most appropriate. If the issue is the balance to be struck between over-regulation and under-regulation, a negotiated process was most appropriate. Such a process might lead to negotiating intermediate risk management instruments, such as "precautionary" tools like "confinement" of a possible stressor, until it is clearly established as a bad or "not-so-bad" risk.

Finally, where ambiguity is the issue, "participatory discourse" involving the major stakeholders and affected citizens is the appropriate mode. Often such cases involve broad issues of legitimacy and different values that need to be worked through.

He provided specific examples of where different models of dialogue (e.g., negotiated rulemaking, citizen advisory groups, public panels or juries) could be used most effectively. He contrasted these different models and types of dialogues in a diagram showing "the risk management escalator." If all three types of challenges are involved in a risk issue, he proposed that the best approach would be a hybrid model that would carefully adapt, plan, and sequence different types of dialogue. He called such an approach "the Cooperative Discourse Model." He acknowledged that it was expensive, time consuming, and often frustrating, and then detailed how it could be effective.

Dr. Renn described the application of the Cooperative Discourse Model to the siting of a solid-waste management plan for Baden Wurttenburg. He described: (1) how stakeholders developed "value trees" to generate lists of concerns and options for addressing the problem; (2) how the group's Delphi process was used to provide expert judgment on the concerns and options; and (3) how randomly selected citizens were organized into panels to identify which risk management plan to adopt. The effort resulted in innovative solutions never imagined by experts and a broad sense in the community that the process and proposed outcome was legitimate and appropriate. Dr. Renn pointed out that this example seemed like a textbook case for his model, but that the local government and administration did not embrace the outcome. The link between deliberation and risk management needed to be extended to implementation.

Mr. Paul Cough, Director of the Office of International Environmental Policy in the Office of International Activities, who had been asked to begin the discussion with his comments, began the conversation with several

questions about the relationship of Dr. Renn's work to the standard distinctions made for risk assessment, risk management, and risk communication. He also asked how Dr. Renn understood the "standing" of different groups to participate in different types of dialogue. He wondered how the Cooperative Discourse Model might be applied to problems at different scales (e.g., local vs. national or international scales) or to issues such as genetically modified organisms (GMs) or mercury.

Dr. Renn replied with an acknowledgement that different political traditions have different attitudes towards risk management. In Germany or France, it was acceptable for a risk manager to select experts, while in New Jersey stakeholders question authority in selecting experts. In the United States, the risk manager's tradition was to "listen to everyone, make everyone comfortable, and then make your own decision." He suggested that such a tradition resulted in a loss of trust. What was needed, in his view, was to find the balance between "giving people the illusion that whatever they come up with will be considered" and "structuring things overmuch."

The Cooperative Discourse Model, he believed, could be applied on more than local and regional scales. Dr. Renn reported that the national strategy for labeling GMOs in Germany was developed based on application of the model. He thought that the model could be useful internationally to deal with complexities, uncertainties, and ambiguities associated with climate change.

Other EPA staff then joined the conversation. Several were curious about the sources of funding for applications of the Cooperative Discourse Model. Dr. Renn informed the group that funding came from private foundations, the German Environmental Protection Agency, the European National Program, the German National Science Foundation, and stakeholders who were parties to the risk management issues.

Dr. Renn was asked several questions about applications of his approach. He informed the group that he has used this approach at the neighborhood level, applying a "stepped-down version, depending on the level of complexity in the issue." He also talked about how his model related to representative government and how he has managed to integrate the decision outcomes arising from application of the Cooperative Discourse Model with the formal political process in Germany. He stated that he attempted to educate interest groups to use citizens' panels for risk management purposes, not for their strategic political ends. He acknowledged that the processes he described result in recommendations, not decisions. Decision-makers are the responsible Agencies or parliaments, which have the legal power to make decisions. He emphasized that with growth of the European Union and international trade, there was increased pressure on German decision-makers to open up the previously-accepted "club atmosphere" for making risk management decisions. He suggested that there was interest in making processes more open and transparent, and "room and funds for experimentation."

Dr. Renn made available slides from his talk and welcomed queries about his approach

through email, at the following address: ortwin.renn@ta-akademie.de. He also provided a copy of a recent paper related to his presentation (*The Challenge of Integrating Deliberation and Expertise: The Participation and Discourse in Risk Management*, Accepted Contribution to the 2000 Risk Symposium volume, Risk and Governance, edited by T.L. McDaniels and M. Small). Please contact Angela Nugent (202-564-4562 or nugent.angela@epa.gov) for copies. The SAB plans to host lectures on the social sciences on a periodic basis to highlight how the social sciences can help solve actual environmental problems. If you have suggestions for future speakers or topics, please contact Dr. Nugent.

SAB Reports in Progress

a *PROJECTS DUE FOR MAY 15 EC MEETING*

EC Subcommittee

1) Review of Dioxin Document

RSAC

1) Review of the FY2002 Budget

b *PROJECTS DUE FOR MAY 23 EC TELECONFERENCE*

RAC

1) Advisory on ISCORS Radionuclides in Sewage Sludge: Dose Assessment Dose Modeling

2) Advisory on GENII Version 2.0

c *PROJECTS DUE FOR LATER EC MEETING*

IRP/EEC

1) Review of the IRP Risk Reduction Options Report

EPEC

2) Review of the Framework for Reporting on Ecological Conditions

RSAC

3) Science at EPA

d *PROJECTS THAT DO NOT REQUIRE EC APPROVAL (CASAC & COUNCIL)*

CASAC

1) Advisory on Continuous Monitoring of Particulate Matter

e *PROJECTS THAT HAVE RECEIVED EC APPROVAL AND AWAIT COMPLETION*

EEC

1) Review of Natural Attenuation Research
2) Commentary on Measures of Environmental Technology Performance

COMPUTER NEWS

(1) SAB Website is within the EPA Home Page. You are invited to visit the SAB Website at URL: http://www.epa.gov/sab The site offers such features as

(a) Full-text reports for FY1994-FY2001

(b) Background information about the structure, function, and membership of the SAB

(c) A rolling two-month calendar of SAB meetings

(d) The most current issue of HAPPENINGS

(e) Draft/final agendas of upcoming meetings and draft/final minutes of past meetings.

(2) SAB Listserver - By subscribing to the free SAB Listserver, you will automatically receive copies of all Federal Register notices announcing SAB meetings, together with brief descriptions of the topics to be covered at the meetings. These notices will be e-mailed to you within 24-hours of their publication in the Federal Register.

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STAFF/MEMBERS/CONSULTANTSNEWS

Staff

The following staff members were recognized for their special contributions to the OSAB at an awards presentation in April.

Ms. Wanda Fields was recognized for her efforts in organizing and supporting the highly profiled SAB's Dioxin Reassessment Review Subcommittee.

Dr. Jack Fowle, Dr. Angela Nugent and Ms. Diana Pozun showed unusual imagination, creativity, and persistence in making it possible for three SAB Members to meet with the staffs of four separate Congressional committees in one day. This encounter on the Hill was the first such SAB-initiated meetings between a SAB Committee and Congress.

Mr. Thomas Miller, EEAC DFO, played a key role in framing the marriage of economics and hard science to the

Agency's environmental decision makers. By framing this complex issue he played an integral role in assisting the Agency to estimate the costs and benefits of environmental options.

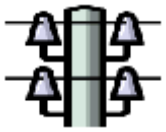
Ms. Vickie Richardson, on her own initiative, redesigned the SAB FY 2000 Staff Annual Report after a decade of the same format. Recipients of the report have indicated that the redesign is extremely effective.

Members/Consultants

Dr. Hilary Inyang, EEC chair, has been selected as one of the nine former American Association for the Advancement of Science (AAAS) Fellows to participate in the Swiss Forum on *The Interface of Science and Government in the U.S.: Case Histories* to be held in Switzerland from June 16-23. As one of the selectees from over 100 highly qualified applicants, Dr. Inyang prepared a proposal that had to meet a number of rigorous criteria, including"...a passion for the subject...or a strong commitment to the topic." Those of us who know him, are not surprised that his proposal ranked high on both counts.

Dr. Genevieve Matanoski, RSAC member, was honored for her achievements by the John Hopkins School of Public Health in a public celebration marking the establishment of the Dr. Genevieve M. Matanoski Fund in Epidemiology.

BON MOT



In light of the electrical power crisis in California that threatens to take the rest of the nation down with it, HAPPENINGS is pleased to supply this timely primer on electricity that will enable our readers to better understand our predicament.

Today's scientific question is: What in the world is electricity? And where does it go after it leaves the toaster?

Here is a simple experiment that will teach you an electrical lesson: On a cool, dry day, scuff your feet along a carpet, then reach your hand into a friend's mouth and touch one of his dental fillings. Did you notice how your friend twitched violently and cried out in pain? This teaches us that electricity can be a very powerful force, but we must never use it to hurt others unless we need to learn an important electrical lesson.

It also teaches us how an electrical circuit works. When you scuffed your feet, you picked up batches of "electrons," which are very small objects that carpet manufacturers weave into carpet so that they will attract dirt. The electrons travel through your bloodstream and collect in your finger, where they form a spark that leaps to your friend's filling, then travel down to his feet and back into the carpet, thus completing the circuit.

AMAZING ELECTRONIC FACT: If you scuffed your feet long enough without touching anything, you would build up so many electrons that your finger would explode! But this is nothing to worry about unless you have carpeting.

Although we modern persons tend to take our electric lights, radios, mixers, etc. for granted, hundreds of years ago people did not have any of these things, which is just as well because there was no place to plug them in. Then along came the first Electrical Pioneer, Benjamin Franklin, who flew a kite in a lightning storm and received a serious electrical shock. This proved that lightning was powered by the same force as carpets, but it also damaged Franklin's brain so severely that he started speaking only in incomprehensible maxims, such as, "A penny saved is a penny earned." Eventually he had to be given a job running the post office.

After Franklin came a herd of Electrical Pioneers whose names have become part of our electrical terminology: Myron Volt, Mary Louise Amp, James Watt, Bob Transformer, etc. These pioneers conducted many important electrical experiments. Among them, Galvani discovered (this is the truth) that when he attached two different kinds of metal to the leg of a frog, an electrical current developed and the frog's leg kicked, even though it was no longer attached to the frog, which was dead anyway. Galvani's discovery led to enormous advances in the field of amphibian medicine. Today, skilled veterinary surgeons can take a frog that has been seriously injured or killed, implant pieces of metal in its muscles, and watch it hop back into the pond -- almost.

But the greatest Electrical Pioneer of them all was Thomas Edison, who was a brilliant inventor despite the fact that he had little formal education and lived in New Jersey. Edison's first major invention in 1877 was the phonograph, which could soon be found in thousand of American homes, where it basically sat until 1923, when the record was invented. But Edison's greatest achievement came in 1879 when he invented the electric company. Edison's design was a brilliant adaptation of the simple electrical circuit: the electric company sends electricity through a wire to a customer, then immediately gets the electricity back through another wire, then (this is the brilliant part) sends it right back to the customer again.

This means that an electric company can sell a customer the same batch of electricity thousands of times a day and never get caught, since very few customers take the time to examine their electricity closely. In fact, the last year any new electricity was generated was 1937.

[*Fittingly, this essay was downloaded from a bulletin board in California in 1998 and attributed to the widely-published Dr. Author Unknown.*]